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Remarks

Claims 1-13 remain in this application. Claims 1, 5, 9 and 11 have been amended. Claims 14-18 have been cancelled. Claims 1 and 9 are independent claims.

In an Office action dated May 19, 2005, regarding the parent application, claims 1-7 were rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. As a correlation, claims 1-7 were rejected under 35 U.S.C. 112, first paragraph. As will be described fully below, claim 1 has been amended to satisfy the requirements of Section 101 and Section 112, first paragraph.

Claims 9, 14, 15, 17 and 18 were rejected under 35 U.S.C. 102(e) as being anticipated by Shaffer et al. ("Shaffer"). Additionally, claims 1, 8, 10-13 and 16 were rejected under 35 U.S.C. 102(a) as being obvious over Shaffer in view of Wical et al. ("Wical"), while claims 2-7 were rejected further in view of Provino et al. ("Provino"). In response to the rejections, Applicants have amended independent claims 1 and 9 to more clearly distinguish the claimed invention from the cited prior art. Independent claim 14 and its dependent claims have been cancelled. Reconsideration of the claims in view of the amendments is requested.

A. Rejection under Section 101

On page 2 of the May 19, 2005 Office action, the first paragraph states that claims 1-7 are directed to non-statutory subject matter because it is not clear that the claims are limited to practice in the technological arts. Applicants respectfully submit that this first paragraph is a carryover from the previous Office action and was not intended, since it contradicts the statement made on page 16 of the same Office action. On page 16, it is stated, "Examiner agrees with the first argument regarding concreteness of technological embodiment." The Examiner's agreement was with the remarks made by Applicants following the amendment of claim 1 to describe the invention as being "a computer readable medium having stored computer executable software." Since the invention is a computer readable medium and the classification of files is implemented using stored computer executable software, it is submitted that the invention is practiced in the technological arts, as required under Section 101.

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The May 19, 2005 Office action maintained the assertion that the invention of claims 1-7 was not limited to a practical application, since a concrete embodiment using the technological art does not necessarily change the status of an abstract or intangible idea. In re Warmerdam was cited for its holding that "... [T]he dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond simply manipulating 'abstract ideas' or 'natural phenomena' ..." On the other hand, in State Street Bank, it was held that the transformation of data, representing discrete dollar values, through a series of mathematical calculations into a final share price constitutes a practical application. The final share price is accepted and can be relied upon by regulatory authorities.

In response to Applicants' increased understanding of the requirement under Section 101, claim 1 has been amended. Specifically, the manipulations are no longer with respect merely to a "file of non-textual subject data." Rather, the classification is with respect to image files. Moreover, within the classification, class labels are assigned to the image files. The assigned class labels may be advantageously employed in subsequent operations by a user.

In the paragraph that begins on page 6 and continues onto page 7 of the Office action, it is noted that the previously filed claim was simply an abstract construct that did not limit the claims "to the transformation of real world data (such as monetary data or heart rhythm data) by some disclosed process." In comparison, amended claims 1-7 now refer to the operations on real world data, namely image files. Class labels are selectively assigned to the individual image files.

Reconsideration of claims 1-7 in view of the amendments is respectfully requested.

B. Rejection under Section 112, First Paragraph

Claims 1-7 were rejected under 35 U.S.C. 112, first paragraph, because current case law requires such a rejection if a Section 101 rejection is given. Thus, the comments made above with regard to satisfying the requirements of Section 101 apply equally to the rejection under Section 112, first paragraph.

Since independent claim 9 was not rejected under Section 101, it is clear that the issue not whether the specification discloses a practical

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utility for the invention. It follows that the amendment to claim 1 to include a practical application appropriately addresses the rejection under Section 112, first paragraph. Reconsideration of the claim and its dependent claims is requested.

C. Patentability of Amended Claims 1-8

Claim 1 has been amended to describe the system decision making module as including four components, namely a task component, an algorithmic component, a sub-algorithmic component and a learning component. The task component is configured to perform a plurality of classification tasks arranged in an established sequential progression of decision making. That is, the performance of classification tasks has an arrangement which is established. Because the sequential progression of decision making is established, the task component is distinguished from prior art approaches (such as taught in Shaffer) in which decision making is not prearranged but is instead recurrently determined. Support for the amendment may be found in viewing Fig. 3, which shows one embodiment of an established sequential progression of decision making. Page 4, lines 10-11 of the application as originally filed states that the sequential progression of decision making is established by the learning component of the system decision module. As described on page 11, a set of training images may be used to order the classification tasks into a sequential progression. Once established, continued learning may induce some modification of the arrangement of classification tasks, but following the modification the task component is again configured to perform classification tasks arranged in an established sequential progression of decision making.

Claim 1 has also been amended to describe the algorithmic component as being configured to select among alternative stored algorithms that are specific to determining assignment of a same class label, at least with respect to some classification nodes. Furthermore, the algorithmic component is configured to use prior determinations of the classification nodes as a basis for selecting among the alternative algorithms that are specific to determining assignment of the same class label. Support for this amendment may be found on page 8, lines 15-28 of the application as originally filed. This portion of the application states that more than one algorithm may be available at a single task node. The algorithmic component makes the selections

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based on factors such as knowledge of previous outcomes. Thus, one face detection algorithm may be utilized for one camera type, a different face detection algorithm may be utilized if another camera type is used in generating the subject image, and a default face detection algorithm may be utilized if there is no *a priori* information regarding camera type.

Finally, claim 1 has been amended to describe the learning component as being a component for modifying the arrangement of classification tasks according to determinations of frequency patterns in the common assignments of the class labels to individual image files. Thus, in the use of the training images as described on page 11 of the application as originally filed, the "order of sequential progression of the task tree is determined by utilizing frequency distribution of the various classes that are associated with the set of training images 90."

1. Teachings of Shaffer

In the rejection of claim 1, paragraphs 29 and 31 of Shaffer are cited as being the most significant portions of the published patent application. However, Applicants refer to paragraphs 26 through 32 in order to obtain a proper understanding of the teachings.

In paragraph 26, the step of collecting pictures has been concluded. Pixel data, meta-data, a customer profile, and order descriptions are available as input data for the subsequent processing steps. As will be explained more fully below, "Which steps are used and in what sequence is determined by the system based upon the desired product." However, before the steps are performed, the specific processing to be applied to the collected set of image material is determined in a processing goals generation step 37 and is embodied in a set of photocollage processing goals 38.

In paragraph 27, it is stated that the automatic processing of photocollages is carried out in processing modules. Each processing module relies on data from a number of sources in order to satisfy the processing goal. Specifically, each processing module has access to five sources of data:

- (1) pixel information contained in the individual images,
- (2) meta data attached to images or groups of images,
- (3) the original product or service order description,

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- (4) the list of active processing goals maintained by the system,
and
- (5) a customer profile containing information about the
customer.

In paragraph 28 of Shaffer, it is stated that each processing module performs processing on two distinct levels, namely the objective level and the subjective level. Objective processing involves factual information or data calculated using deterministic algorithms. On the other hand, subjective processing involves information that is uncertain or data that is the result of non-deterministic algorithms.

Then, in paragraph 29, the processing of a photocollage is described. The processing is directed by the system using the active processing goals 38, 48 and 49. "There exist a large number of possible processing sequences," because the processing goals are non-deterministic, vary by requested product, and may be modified during the processing. The progression of processing is applied in sequential steps. Each step implements a single processing module that is intended to satisfy or partially satisfy an active processing goal. At each step in the process, any one of the available processing modules may be executed. The processing modules for execution at a particular step are identified as culling 62, grouping 64, enhancing 66, annotating 68, associating 70, and composing 72. At the conclusion of the processing of a particular step, the active processing goals 38 are updated to reflect the changes in goals that resulted from execution of the processing step.

Paragraph 30 of Shaffer describes the culling processing module as being one in which unwanted images are removed. Culling is performed on images that are deemed unwanted due to poor quality, or if there are several images that are similar in composition and only one is desired. Paragraph 31 begins with the description of techniques for determining the technical quality of an image and techniques for ranking a group of images.

The second half of paragraph 31 refers to the grouping processing module 64. The goal of the grouping processing module is to associate images that are part of a common theme or story. For example, grouping schemes can include grouping by location, event, or image content type. The publication states that there are a variety of software algorithms which are applicable to grouping. One class of software algorithms operates

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on meta-data, while a second class of algorithms employed for the grouping process would include image processing algorithms which identify objects and feature sets within an image by way of pixel information 32.

Finally, paragraphs 32, 33, 34 and 35 provide detail regarding the annotation processing module 68, the enhancing processing module 66, the associating processing module 70, and the composing (layout) processing module 72, respectively. The most significant of these modules with respect to the patentability of Applicants' amended claims is the annotation processing module described in paragraph 32. The annotation is designed to provide context information about the image or group of images. A common form of annotation is text which explains the "who, what, when, where, and why." Such context information can be derived from meta-data 34 generated in previous processing steps, user profiles 30, or image understanding algorithms applied in the annotation module.

2. Differences Between Amended Claim 1 and the Teachings of Shaffer

It was noted in the Office action that Shaffer fails to teach a learning procedure for modifying the arrangement of classification tasks (the obviousness of modifying Shaffer in view of the teachings of Wical will be addressed in the section that follows). A second difference between the invention described in claim 1, as amended, is that the task component of claim 1 is configured to perform the classification tasks which are arranged in an established sequential progression of decision making. In comparison, Shaffer teaches that there exist a large number of possible processing sequences, because the processing goals are non-deterministic, because the processing goals vary by requested product, and because the processing goals may be modified during the processing (Shaffer: paragraph 29).

Another significant difference is that for at least some of the classification nodes of claim 1, the algorithmic component is configured to select among alternative stored algorithms which are specific to determining assignment of a same class label. In the selection among the alternative stored algorithms that are specific to determining assignment of the same class label, prior determinations at the classification nodes are used as a basis for the selecting. It is respectfully submitted that the amendments to claim 1 place the claim and its dependent claims in a condition for allowance.

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In comparing the teachings of Shaffer to claim 1, the Office action states that the Shaffer "processing steps are equivalent to classification nodes." Fig. 3 of Shaffer shows three processing steps, number 52, 53 and 54. At each step, six possible processing modules are available. Paragraph 29 of Shaffer states that each step implements a single processing module. At each step in the process, any one of the available processing modules may be executed. For example, image enhancement may be executed. The processing goals determine the processing module that will be selected for a particular step. At the conclusion of the step, the processing goals are updated to reflect changes in goals that resulted from execution of the concluded processing step. The updated processing goals serve as the input processing goals for the subsequent step. Thus, paragraph 29 specifically states that "there exist a large number of possible processing sequences."

The task component of pending claim 1 is configured to perform the classification tasks that are arranged in an established sequential progression of decision making. This feature of an established sequential progression is contrary to the teachings of Shaffer. Applicants assert that Shaffer teaches away from the invention described in amended claim 1. It is well settled that prior art references that lead away from the claimed invention are both relevant and persuasive as to the question of patentability. W.L. Gore & Associates, Inc. v. Garlock, Inc., 220 USPQ 303 (Fed. Cir. 1983).

Claim 1 has been amended to state that the established sequential progression includes classification nodes for assigning class labels to individual image files. For at least some of the classification nodes, there are alternative stored algorithms specific to determining assignment of a same class label. Since these classification nodes assign the same class label, this process is not equivalent to the first portion of paragraph 31 in Shaffer, which refers to ranking in order to assert a decision regarding the quality of the image. Teachings relating to ranking are not consistent with claim language referring to a same class label.

The second portion of paragraph 31 in Shaffer relates to the grouping processing module, which does not assign "class labels." The annotating does not occur until the processing step described in paragraph 32. The "class labels" identified in paragraph 32 are "who, what, when, where, and why." With respect to any one of these class labels, Shaffer does not teach or suggest configuring an algorithmic component to select among alternative stored algorithms that are specific to determining assignment of

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that class label. Shaffer does teach that a single algorithm may access different sources of information, but this is fundamentally different than the description in amended claim 1.

Alternatively, the assignment of class labels may be equated to the associating processing module described in paragraph 34 of Shaffer. Here, the processing goal is to associate external content that is relevant to the product and the image content. However, paragraph 34 does not teach or suggest configuring an algorithmic component to select among alternative stored algorithms that are specific to determining assignment of a same class label. Therefore, the teachings of Shaffer do not teach or suggest a number of fundamental features of amended claim 1.

3. The Combination of Shaffer and Wical

The Office action cites Wical for teaching a learning system that provides automated means for learning words and phrases from a set of documents. It is asserted in the Office action that it would be obvious to one of ordinary skill in the art to modify the system taught by Shaffer by adding the learning system as taught by Wical.

Applicants respectfully request a more thorough explanation of the proposed modification of Shaffer in view of Wical. The "learning" of Wical involves understanding words and phrases. The learning system may be used in conjunction with a classification system, which is also known as a knowledge catalogue that includes categories arranged in a hierarchical structure. In order to accumulate the contextual data, the learning system classifies a word or phrase in a category, wherein the classifications are based on uses of the word or phrase in a set of documents. As described in column 2, lines 15-26 of Wical, the learning system analyzes the contextual data and selects a single category (or multiple categories if the term is ambiguous) in the classification system in order to classify the word or phrase. Thus, the learning system generates lexical associations to learn terminology. Given the various systems described in Wical, a *prima facie* case of the obviousness of modifying Shaffer is not apparent from the brief description provided in the Office action.

Equally importantly, Shaffer teaches away from the modification. Shaffer teaches that it is beneficial that the processing sequence be continuously adaptive, so that the prior art published patent application teaches

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away from providing a "learning component for modifying said arrangement of classification tasks, wherein the classification tasks are arranged 'in an established sequential progression.'" In paragraph 29, Shaffer states that there are a large number of possible processing sequences, because the processing goals are non-deterministic, vary by requested product, and may be modified during the processing.

Reconsideration of the patentability of claim 1 is requested.

4. Patentability of Claims 2-7 in View of
the Combination of Shaffer, Wical and Provino

In the rejection of claims 2-7, Provino was cited for disclosing a system and method for facilitating the access of file systems or storage systems in a network environment. It was not asserted that it would be obvious in view of Provino to modify the Shaffer system to more closely approach Applicants' invention described in claim 1. Rather, Provino was cited merely for its teachings regarding a "file storage remote management system for the purpose of identifying proper sequence of modules to execute and to provide the classification of data." Applicants respectfully submit that even if one were to modify the teachings of Shaffer in view of Provino, as proposed in the Office action, the resulting system and method would not render Applicants' invention obvious under Section 103(a).

Reconsideration of claim 1 and its dependent claims in view of the amendments is requested.

D. Patentability of Claims 9-13

Amended independent claim 9 describes the method as including "establishing a sequential progression of decision making." This step includes using automated processing techniques to define a dependent arrangement of task nodes, with each task node in the dependent arrangement being associated with a class label for classifying a data file. That is, the dependent arrangement is not defined as one that merely "includes" task nodes that are associated with a class label. Rather, each task node in the dependent arrangement is associated with a class label. The task nodes include multi-algorithmic task nodes that are specified to determining assignment of a particular class label and each alternative algorithm at a

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particular multi-algorithmic task node is specific to the particular class label. Upon receiving a file of non-textual subject matter, the file is progressed through the dependent arrangement of task nodes. This includes selecting from among the alternative algorithms at the multi-algorithmic task nodes.

A first fundamental difference between amended claim 9 and the teachings of Shaffer is that each task node in the dependent arrangement is associated with a class label. In the Office action, it is stated that the steps of Shaffer are equivalent to the task nodes. Paragraph 29 of the published patent application is cited. Applicants note that this paragraph is clear in stating that each step implements a single processing module and identifies a number of different processing modules. The processing modules include culling 62, which is a removal of unwanted images. The processing modules also include enhancing, which relates to providing image enhancements such as red-eye removal. Thus, Shaffer does not anticipate a dependent arrangement of task nodes in which each task node is associated with a class label for classifying a data file. Moreover, neither the learning system of Wical nor the file sharing system of Provino provides any motivation for modifying Shaffer to include a dependent arrangement of task nodes that are each associated with a class label.

Another fundamental difference between amended claim 9 and the teachings of Shaffer relates to the multi-algorithmic task nodes. It is stated in the Office action that some of the classification nodes of Shaffer have a plurality of software algorithms, citing paragraph 31, lines 55-65. However, paragraph 31 does not teach determining which alternative next task node is to be selected in the sequential progression of decision making. Rather, paragraph 31 relates to determining the technical quality of images, ranking images, and grouping images. Referring to Fig. 3 of Shaffer, it is the recurring visits to the "processing goals" at elements 38, 48 and 49 that determine which processing module will be implemented at the next step 52, 53 and 54. There is no teaching in Shaffer that the process of updating the processing goals involves selection of one of alternative algorithms for the updating. Neither of the two cited secondary references renders it obvious to modify Shaffer to include alternative algorithms for updating the processing goals.

Moreover, the amendment to claim 9 more clearly points out that each alternative algorithm at a multi-algorithmic task node is specific to a particular class label. Since the elements 38, 48 and 49 of Shaffer (Fig. 3) are

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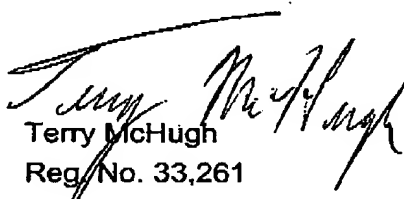
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the elements at which it is determined which task node (processing module) is to be selected, and since these elements 38, 48 and 49 are not "multi-algorithmic" with respect to their own implementation, Shaffer does not anticipate Applicants' claimed invention.

Turning to dependent claims 10, 11 and 12, it was asserted in the Office action it would be obvious to modify Shaffer in view of Wical. Applicants again request a more thorough explanation of the proposed modification. However, it is also noted that the amendments to claim 9 are neither taught nor suggested by the combination of Shaffer and Wical, so that the patentability of the independent claim places the dependent claims in a condition for allowance. Reconsideration of the claims is requested.

Applicants respectfully request reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited. In the case that any issues regarding this application can be resolved expeditiously via a telephone conversation, Applicants invite the Examiner to call Terry McHugh at (650) 969-8458.

Respectfully submitted,



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